

REMARKS

This Amendment is in response to the Office Action mailed July 25, 2006. Claims 1-3, 5-14, 16-23, 25-26, 28-30, and 32-46 are pending in the case. The Applicants have cancelled claims 4, 15, 24, 27, and 31 hereby without prejudice. Applicants have amended claims 1, 7, 8, 10, 12, 17, 23, 25, and 28-34. Applicants have added new claims 35- 46.

Claims 1-35 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Gerstel et al., U.S. Publication No. 2004/0165888 ("Gerstel"). Applicants respectfully traverse.

The Office Action rejects independent claim 25 for the reasons set forth on page 6 of the Office Action. Independent claim 25 recites the following limitations: "sending out a test signal from a terminal node...sending out the determination result to said terminal node...identifying the fault location based on the determination result in said terminal node that has received the determination result; and sending out the test signal from the node having sent out the determination result to said working system path if no fault is detected during the operation of the identifying step". The Office Action cites paragraphs [0029] to [0030] and Figure 5 of Gerstel against these limitations.

Nothing in Gerstel teaches or suggests, *inter alia*, "sending out a test signal from a terminal node", "sending out the determination result to said terminal node" "identifying the fault location based on the determination result in said terminal node" and "sending out the test signal from the node having sent out the determination result" if no fault is detected during the operation of the identifying step. To the contrary Gerstel generally discloses injecting a test signal along a lightpath with

loopbacks to verify the quality of a connection. For example, in describing Figure 5 at paragraph 30, Gerstel states that all the transponders in OLTs are commanded to run in a test mode, whereby the transponders receive the test signal from a source. Gerstel goes on to say "a determination is made if there are errors in the received test signal, and if so, and alarms sent to the local management system controller. At step S120 the management system controller displays alarms for channels which exhibit an error. At step S122 a determination is made on a per channel basis as to whether or not an error exists." Nothing in this description teaches or suggests the claimed testing regimen that starts with sending out a test signal from a terminal node to another node that returns a determination result and culminates with sending out the test signal from the node having sent out the determination result if no fault is detected during the operation of an identifying step.

The description at paragraph 0031 is similarly deficient. At that paragraph Gerstel discloses loopback functionality for optical network testing. Gerstel states:

FIGS. 6 and 7 illustrate an example of a point-to-point WDM network configuration that includes a plurality of optical nodes....However, when placed in a loopback mode as in FIG. 7, the switch 88 [in optical add/drop multiplexer 84] is used to redirect received traffic towards, for example, signal monitoring equipment within or proximate to the transmitting equipment. FIG. 7 illustrates such a loopback for eastbound traffic. In this way, that portion of the connection between OLT 80 and OLT 90 that extends between OLT 80 and optical add/drop multiplexer 86 [OLT 80, optical add/drop multiplexer 84, and optical add/drop multiplexer 86] can be tested for signal integrity and quality, thus facilitating isolation and localization of network faults. It is to be appreciated that a loopback switch may also be included in OLT 80, optical add/drop multiplexer 84 and OLT 90 to further isolate where a problem exists in the network.

Gerstel describes only a general loopback testing scheme with a single testing source that receives a signal. There is no node that sends a determination result *per se*, and even if there were, there is absolutely no disclosure of sending another test signal from a node that sent out that determination result if no fault is identified as required by claim 25.

Moreover, new claims 36 and 40 recite: "said test signal sending component notifies the determination result of said determination device to said another network node apparatus and, if no fault is identified, transmits the test signal to a next network node apparatus after notifying said determination result". For the reasons outlined with respect to claim 25, applicants urge these independent claims as well as their dependent claims are allowable.

The Office Action rejects independent claims 28 and 29 for the reasons set forth on page 7 of the Office Action. Claim 23 recites "a terminal node...wherein said terminal node is each of a start node and an end node of said transmission line" and "folding back the test signal to the terminal node in a center node that has received the test signal". Independent claim 28 recites the following limitations: "

sending out a test signal from each of a start node and an end node of said transmission line to a node located in the center of a working system path (current path) after switching said working system path to an auxiliary system path (stand-by path) in response to occurrence of a fault;

folding back the test signal to each of said start node and said end node in the node located in the center of said working system path that has received the test signal;

identifying the fault location based on the determination result by determining the signal quality of the test signal folded back at each of said start node and said end node and

releasing the nodes outside a fault interval in said working system path to set up the other path, if there is any fault detected in either said start node or said end node during the operation of the identifying step. (Emphasis added).

Claim 29 has the same recitations except for the first paragraph shown above, which instead recites, "sending out the determination result to each of said start node and said end node by determining the signal quality of the test signal in the node located in the center of said working system path that has received the test signal".

First, Gerstel has no teaching or suggestion for sending out a test signal from each of a start node and an end node of a transmission line to a center node or a node located in the center of a working system path. At best, Gerstel shows a start node and an end node sending a test signal to any one of a number of intermediate optical add/drop MUXs, as described at paragraph 0031, recounted above. Claims 23, 28 and 29 each recite that a center node receives a test signal from a start and end node.

Moreover, even if these optical add/drop MUXs were center nodes, which they are not, there is still no teaching or suggestion for releasing the nodes outside a fault interval in said working system path to set up the other path if there is any fault detected in either said start node or said end node during the operation of the identifying step. Claims 28 and 29 clearly recite identifying the fault location based on the determination result based on the quality of the test signal folded back at each of said start node and said end node and then releasing nodes outside the fault interval. While Gerstel has some general language with respect to isolating and localizing network faults (e.g., with respect to the eastbound traffic in FIG. 7, "It is to be appreciated that a loopback switch may also be included in OLT 80, optical add/drop multiplexer 84 and OLT 90 to further isolate where a problem exists in the network"),

the disclosure does not teach or suggest any method for identifying or localizing faults so as to release nodes outside the fault interval to be used in an operable network path.

Independent claims 1 and 12, as well as new independent claims 45 and 46 each recite that “the test signal is sent from each of the start node apparatus and the end node apparatus of said transmission line to a center node apparatus”. Accordingly, for the reasons above, Applicants urge that these claims as well as their dependent claims are in condition for allowance.

In light of the comments above, the applicants urge that independent claims 1, 12, 23, 25, 28, 29, 36, 40, 45 and 46 are each allowable over the prior art of record, and are presently in condition for allowance. All of the remaining pending claims ultimately depend from these independent claims. Each of these independent claims include additional limitations which, in combination with limitations of claims from which they depend are neither taught nor suggested in the prior art of record. As such, the Applicants urge that claims 1-3, 5-14, 16-23, 25-26, 28-30, and 32-46 are all in condition for allowance and thereby respectfully request reconsideration and withdrawal of all the rejections.

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Should any fees be required, please charge such fees to Deposit Account No.
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